

WHAT IS CLAIMED IS:

1. An image forming apparatus, comprising:

an image carrier for holding a toner image,

5 a transfer member for transferring said toner image formed on said image carrier onto a printing member,

a voltage application portion for applying voltage to said transfer member, said portion switching said voltage from first voltage to second voltage that is greater than
10 said first voltage so as to transfer said toner image onto said printing member at a transfer nip position that said image carrier is confronted with said transfer member,

a mode setting portion for setting a plurality of modes, and

15 a voltage setting portion for setting said voltage, said portion setting said second voltage of a different value according to the mode set by said mode setting portion,

wherein said voltage application portion switches said voltage from said first voltage to said second voltage
20 at first timing before a tip of said printing member reaches said transfer nip position when the set mode by said mode setting portion is a first mode, and switches said voltage from said first voltage to said second voltage at second timing that is later than said first timing when the set
25 mode by said mode setting portion is a second mode.

2. The image forming apparatus according to claim 1,

wherein said mode setting portion sets said mode according to the type of printing member.

3. The image forming apparatus according to claim 1,

5 wherein said voltage setting portion sets said second voltage according to said first voltage and the mode set by said mode setting portion.

4. The image forming apparatus according to claim 1, further
10 comprising:

 a current detecting portion for detecting electric current that flows to said transfer member,

 wherein said voltage setting portion sets said first voltage according to voltage applied by said voltage
15 application portion so that said electric current detected by said current detecting portion remains constant value during a non-transfer process that said toner image is not transferred onto said printing member.

20 5. The image forming apparatus according to claim 1,

 wherein said second voltage set by said voltage setting portion at said first mode is lower than said second voltage set by said voltage setting portion at said second mode.

25 6. The image forming apparatus according to claim 5,

 wherein said first mode is a mode that the type of printing member is a plain paper, and said second mode is

a mode that the type of printing member is a thick paper.

7. The image forming apparatus according to claim 1,
further comprising:

5 a printing member transporting portion for
transporting said printing member to said transfer nip
position, and

a printing member detecting portion for detecting the
tip of said printing member transported by said printing
10 member transporting portion,

wherein said first timing and said second timing when
said voltage is switched by said voltage application portion
is equal to the timing when said printing member is detected
by said printing member detecting portion.

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8. The image forming apparatus according to claim 1,

wherein said voltage application portion switches
said voltage from said second voltage to said first voltage
when the rear end of said printing portion reaches said
20 transfer nip position.

9. An image forming apparatus, comprising:

an image carrier for holding a toner image,

a transfer member for transferring said toner image
25 formed on said image carrier onto a printing member,

a voltage application portion for applying voltage
to said transfer member, said portion switching said voltage

from first voltage to second voltage that is greater than said first voltage so as to transfer said toner image onto said printing member at a transfer nip position that said image carrier is confronted with said transfer member, and

5 a current detecting portion for detecting electric current that flows to said transfer member,

wherein said voltage setting portion sets said first voltage according to voltage applied by said voltage application portion so that said electric current detected by said current detecting portion remains constant value during a non-transfer process that said toner image is not transferred onto said printing member, and

10 wherein said voltage application portion switches said voltage from said first voltage to said second voltage at first timing before a tip of said printing member reaches said transfer nip position when said first voltage is over predetermined voltage, and switches said voltage from said first voltage to said second voltage at second timing that is later than said first timing when said first voltage is smaller than predetermined voltage.

10. The image forming apparatus according to claim 9,
wherein said voltage setting portion sets said second voltage according to said first voltage.

25 11. The image forming apparatus according to claim 9, further comprising:

a printing member transporting portion for transporting said printing member to said transfer nip position, and

5 a printing member detecting portion for detecting the tip of said printing member transported by said printing member transporting portion,

wherein said first timing and said second timing when said voltage is switched by said voltage application portion is equal to the timing when said printing member is detected
10 by said printing member detecting portion.

12. The image forming apparatus according to claim 9,

wherein said voltage application portion switches said voltage from said second voltage to said first voltage
15 when the rear end of said printing portion reaches said transfer nip position.

13. An image forming apparatus, comprising:

an image carrier for holding a toner image,
20 a transfer member for transferring said toner image formed on said image carrier onto a printing member,
a voltage application portion for applying voltage to said transfer member, said portion switching said voltage from first voltage to second voltage that is greater than
25 said first voltage so as to transfer said toner image onto said printing member at a transfer nip position that said image carrier is confronted with said transfer member, and

a reverse transporting portion for reversing and transporting said printing member to said transfer nip portion so as to transfer said toner image onto a second surface after transferring said toner image onto a first surface of said printing member,

wherein said voltage application portion switches said voltage from said first voltage to said second voltage at first timing before a tip of said printing member reaches said transfer nip position when said toner image is transferred onto said second surface, and switches said voltage from said first voltage to said second voltage at second timing that is later than said first timing when said toner image is transferred onto said first surface.

14. The image forming apparatus according to claim 13, wherein said voltage setting portion sets said second voltage according to said first voltage.

15. The image forming apparatus according to claim 13, further comprising:

a printing member transporting portion for transporting said printing member to said transfer nip position, and

a printing member detecting portion for detecting the tip of said printing member transported by said printing member transporting portion,

wherein said first timing and said second timing when

said voltage is switched by said voltage application portion is equal to the timing when said printing member is detected by said printing member detecting portion.

- 5 16. The image forming apparatus according to claim 13, wherein said voltage application portion switches said voltage from said second voltage to said first voltage when the rear end of said printing portion reaches said transfer nip position.

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17. An image forming apparatus, comprising:

an image carrier for holding a toner image,

a transfer member for transferring said toner image formed on said image carrier onto a printing member,

15 a voltage application portion for applying voltage to said transfer member, said portion switching said voltage from first voltage to second voltage that is greater than said first voltage so as to transfer said toner image onto said printing member at a transfer nip position that said

20 image carrier is confronted with said transfer member, and a voltage setting portion for setting said second voltage,

wherein said voltage application portion, according to said second voltage set by said voltage setting portion, 25 determines the timing for switching said voltage from said first voltage to said second voltage based on either first timing before a tip of said printing member reaches said

transfer nip position or second timing that is later than said first timing.

18. The image forming apparatus according to claim 17,

5 wherein said second voltage set by said voltage setting portion when said voltage application portion switches said voltage from said first voltage to said second voltage at first timing is higher than said second voltage set by said voltage setting portion when said voltage application
10 portion switches said voltage from said first voltage to said second voltage at second timing.